AN IMPROVED METHOD OF MAKING

Plant Containers

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AN IMPROVED METHOD OF MAKING PLANT CONTAINERS

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A practical and inexpensive method for making plant containers for propagation work has come from the California nurseries of the Soil Conservation Service.

By this method, paper containers can be produced at about one-fourth the usual cost if they have to be bought. These containers can be made of different kinds of paper and in various sizes. They can be filled with soil without crimping or buckling the paper and can be removed from the soil without tearing or pulling, thus avoiding danger of the soil crumbling and exposing the roots.

The only special equipment needed for preparing these plant containers is a metal partition unit, made up of slotted metal strips; a wooden "shaper" tool; and two simple paper-cutting devices.[1] This equipment is easy to make.

The method could be adapted to mass production. Plant flats could be held in a fixed position so that a unit of 100 or more shaper tools, operated by a lever, would shape all the containers in a flat at one time. The soil could be added from overhead bins and settled into the containers by a shaking or jiggling device.

Any size of containers can be produced merely by using different size metal strips and shaper tools and cutting the paper in the required sizes. The description in this Leaflet is based on making plant containers 1¼ inches square and 5¾ inches deep, in flats 18 inches by 18 inches inside dimensions, and 6 inches deep.

The Method

The metal partitions are made up of 18 pieces of 28-gage galvanized iron. Each piece is 5½ inches wide and about 17⅞ inches long—or just short of 18 inches, to allow the pieces to fit easily into the 18-inch flat. Nine slots are cut halfway through the width of each strip, to make 10 equal divisions of about 1¾ inches each (fig. 1).

To build up the metal partition unit, you—

1. Fit end slots of two metal strips together (fig. 2).

2. Fit the other metal strips together to complete an "egg crate" unit, and place it in a nursery flat or box (fig. 3).

3. Insert in these egg-crate cells, strips of asphalt-treated paper—or any other kind of paper or flexible material suitable for plant containers (fig. 4).

[1] Patent No. 2186912 on the plant-container method and Patent No. 2172723 on the paper rack and slicer were granted to Herbert and Hoglund and have been dedicated to the free use of the people of the United States.

Figure 1.—Nine slots are cut halfway through the width of each strip, to make 10 equal divisions.

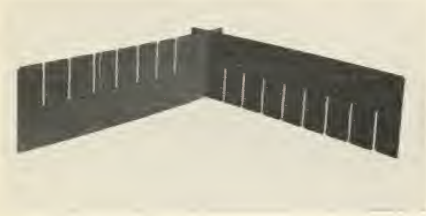

Figure 2.—End slots of two metal strips fitted together.

Figure 3.—The other metal strips fitted together to complete an "egg crate" unit and placed in a nursery flat.

The width of the paper strip inserted in each metal cell should be a little less than that of the metal strip. This will bring the paper down slightly lower than the cell tops and thus protect the paper from crimping or buckling when the soil is added. The length of the paper strips is slightly greater than the perimeter of the cells. This allows about ¼- to ½-inch overlap. For the flats and metal units of the dimensions given the paper strips are 5¼ by 7¼ inches.

The paper strip is curved by hand to make a cylinder, with a slight overlap, so that the 5¼-inch dimension becomes the length of the cylinder. The cylinder is placed endwise in a cell (fig. 4), and when pushed all the way down, the cylinder is a little below the top of the cell.

When all the cells of the metal unit have been filled with paper cylinders, these are then shaped or "squared" to conform with the metal cells. This is done by means of a wooden shaper tool (fig. 5). The shaper tool is made of one piece of wood with a round handle and a squared part below. The square part is very slightly tapered from top to bottom but more sharply tapered for about ½ inch at the lower end. This tapering at the end permits the shaper tool to be inserted easily at the top of the paper cylinder. It is then pushed to the bottom, squaring the paper solidly to the cells.

The size of the square part of the shaper tool should be such that it can be pushed to the bottom of the cell and still be easily withdrawn. First make it fit a little too tight, then rasp it down to the desired size, and round the corners.

The shaper tool is fitted with a coil spring and crossbar (fig. 6). As you push the tool into a cell, the crossbar rests across the top of the cell (fig. 5). When you withdraw the shaper tool, the spring holds the crossbar in position, thus preventing the paper from being withdrawn with the shaper tool.

After shaping the papers, fill the flats about one-third full with soil, leaf-mold, or other plant-growing

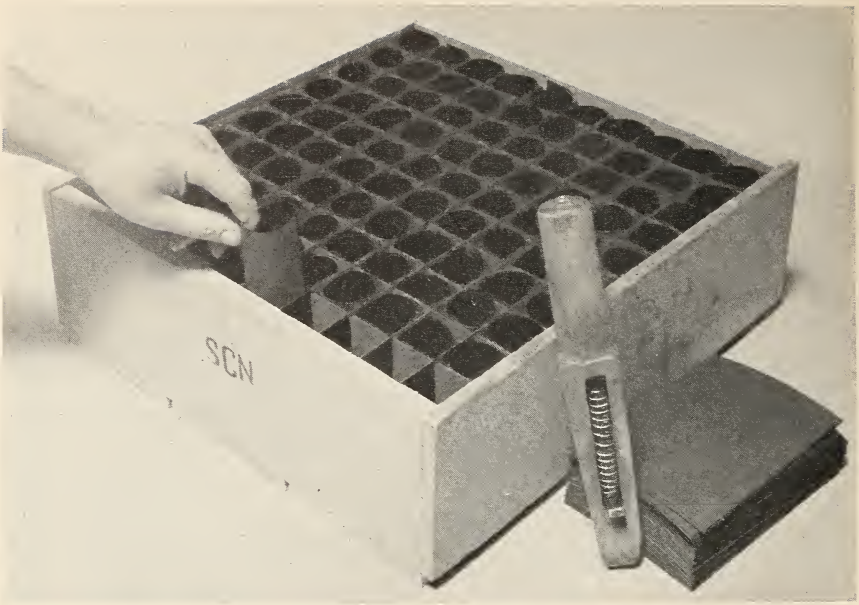

Figure 4.—Asphalt-treated building paper, weighing 35 pounds per 500 feet, cut in strips, curved to make a cylinder, and placed endwise in a cell.

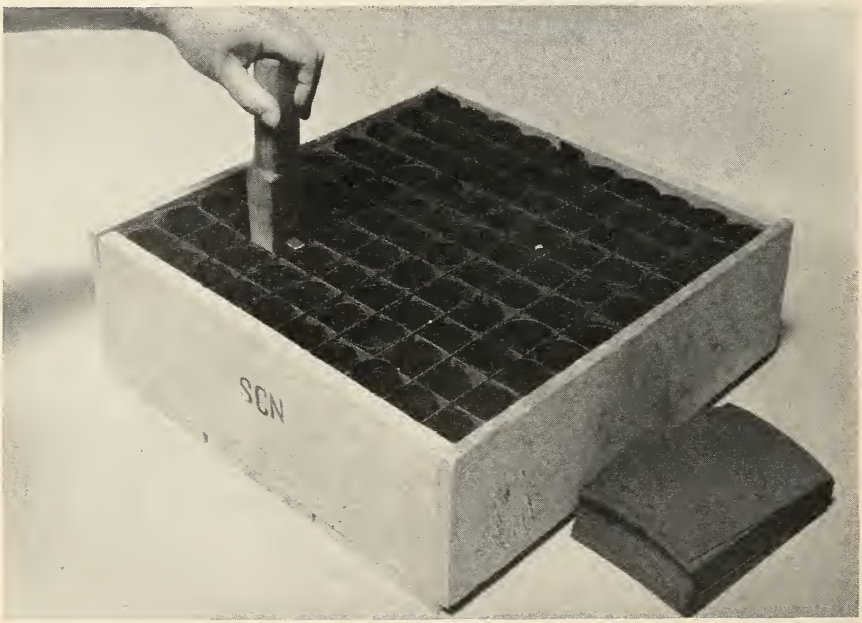

Figure 5.—Wooden shaper tool squaring a container in a metal partition unit in a flat.

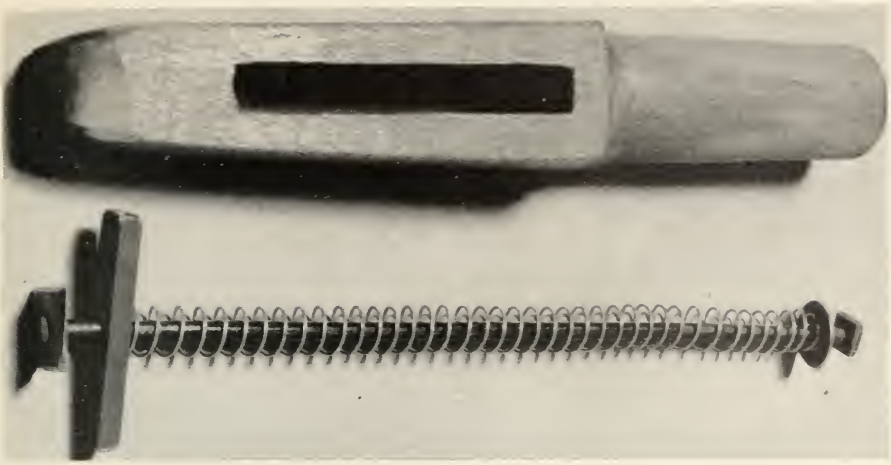

Figure 6.—Wooden shaper tool fitted with coil spring and crossbar.

material. By means of the shaper tool press this soil down lightly in each cell to insure a solid squaring of the papers at the bottom. This may not have been quite as complete as at the top, because of the slight tapering of the square part of the shaper tool.

The flats are then filled with soil and the metal strips removed (fig. 7). Depending on the kind of growing material, this can be done either with pliers or by hand. Remove the nine strips with solid sides up first. Then remove the remaining strips. This leaves the flat with soil-filled plant containers. The metal strips are then available for another flat.

When the plants are ready for transplanting, you can easily take them from the nursery flat by removing one side of the flat.

Several million plants have been handled by the plant-container method in the nurseries of the Pacific Region

Figure 7.—*A,* Metal strips are removed with pliers or by hand. *B,* This leaves the soil-filled plant containers for dibbling-in young plants or for planting seed direct.

of the Soil Conservation Service during recent years. This includes transplanting seedlings of eucalyptus, grevillea, cork oak, and other broadleaf evergreens, conifers, shrubs such as ceanothus, rhus, cassia, and others; also grasses and other forage plants. The lathhouse shown on the cover contained 650,000 plants potted by this method the first season it was put into use. The picture was taken after a season's growth of about 5 months.

Paper Rack and Slicer

To cut the paper for the plant containers, two simple cutting devices were developed. You can adapt these cutters to the kind of paper and size of container desired. This description, however, is confined to the size of containers discussed in this Leaflet.

Paper in rolls 3 feet wide is used in the first cutter. The roll of paper is mounted on the two posts slightly above a table (fig. 8). The paper is pulled from the top of the paper roll down to where it passes under a small wooden roller about 1½ inches in diameter. This wooden roller is several inches longer than the width of the paper. It is mounted just in front of the paper roll and is about ½ inch lower than the table across which the paper is pulled. Thus it is necessary to pull the paper about ½ inch upwards and over the edge of the table.

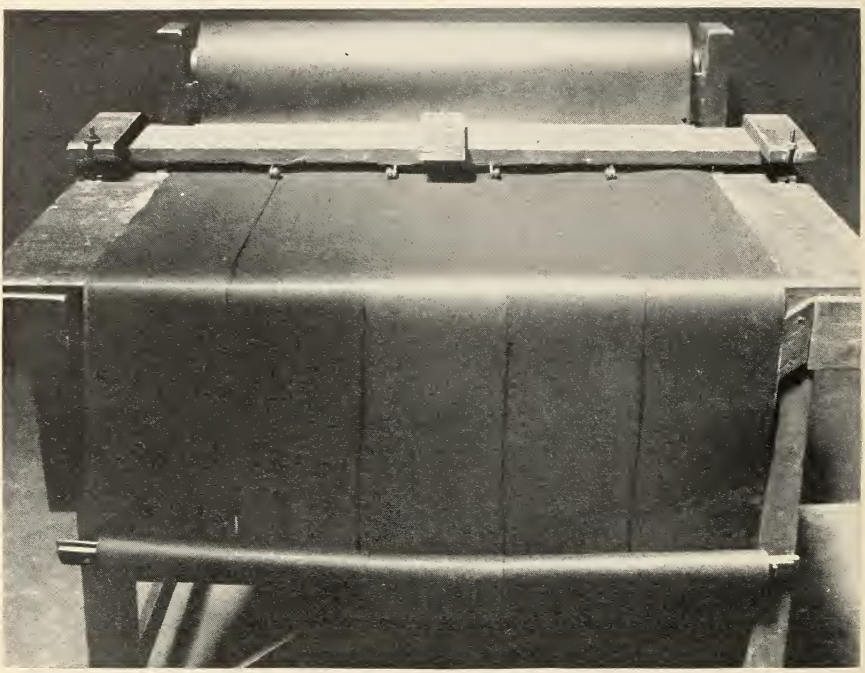

Figure 8.—The paper cutter mounted on a table. A roll of asphalt-treated paper containing 167 lineal feet is fed into small cutting wheels which cut the paper into five strips. The wheels are made from common can openers.

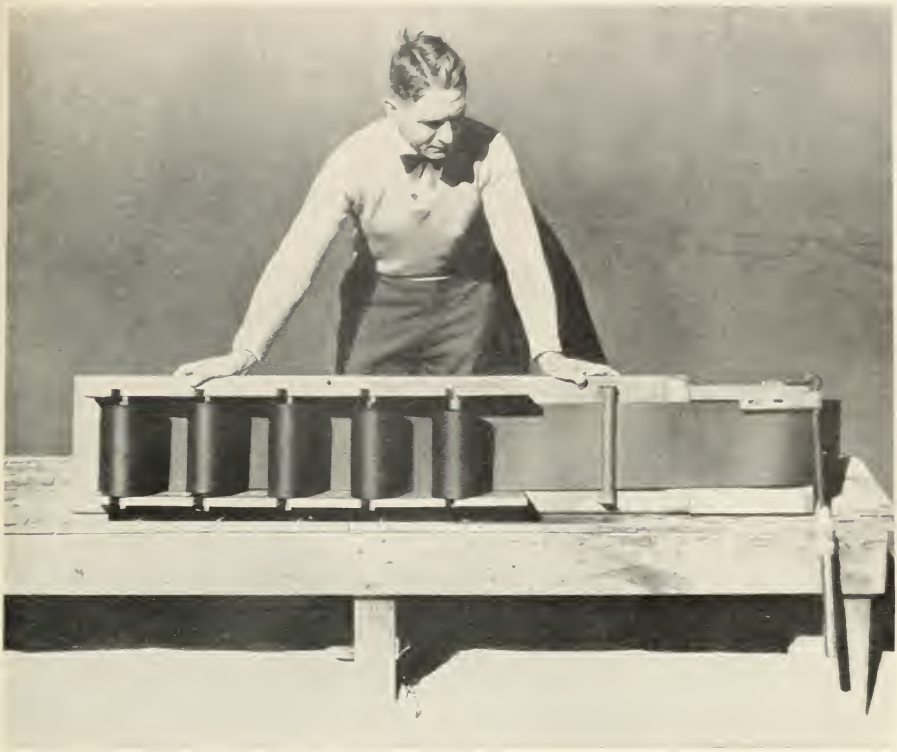

Figure 9—Paper cutting device consisting of a rack, rollers, and paper slicer mounted on a baseboard.

The edge of the table is rounded. The relative positions of paper roller, wooden roller, and edge of table cause a drag on the paper. Since a slow, steady pull can be maintained on the paper itself, too rapid rotating of the paper and the consequent danger of its buckling are prevented.

In front of the wooden roller are two small pieces of angle iron about 10 inches long and having ½-inch sides. These serve as guards. They are placed 3 feet apart in positions paralleling the edges of the paper as it is drawn across the table. The wooden roller and the guards combine to keep the paper smooth and straight as it is pulled forward.

Four small cutting wheels are fastened to the under side of a board (fig. 8). They are placed 7⅕ inches apart to cut five equal strips from paper 36 inches wide. The board is hinged to the table just in front of the wooden roller and over the guards. After the board is turned back on its hinges, the paper is pulled under it. Then it is let down to the cutting position. The board is either weighted or clamped down to make the cutting positive.

In cutting the paper the wheels operate against the edge of pieces of steel about one-eighth inch thick and large enough to provide for screwing to the table. Alongside the cutting edge of the steel make a narrow groove

Figure 10.—Two sets of low-growing shrubs grown in a 4-inch flat. These are typical plants grown in soil in a lathhouse for 5 months in asphalt-treated paper containers. They are now ready for their permanent locations.

in the table deep enough to allow free turning of the cutting wheel.

As the paper is pulled under the cutters and cut into five strips, these strips are rolled simultaneously onto two ordinary laths or flat sticks of wood (fig. 8). Two laths can be removed (one at a time) more easily than a single piece on which the rolls would be more likely to "bind." After the five equal strips are rolled onto the lath, the lath is removed.

The five rolls of paper are placed on rollers on the second paper cutter (fig. 9). These rollers are fitted, by means of slots, into a wooden rack. The paper is then pulled off the rolls from the under sides to the end of the rack. The ends of the paper are drawn under a small wooden roller to a paper cutter that cuts them to the size required, five pieces at a time. Fastened to the end and top of the blade on the paper slicer is a piece of metal at right angles to the blade. An adjustable marker is fitted into a slot on this piece of metal. As each cut is made, the marker makes a mark for the next cut. The rack, wooden roller, and paper slicer are all fastened to one baseboard to make a single unit.

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